IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

CENTER FOR BIOLOGICAL DIVERSITY, et al., Plaintiffs, v. WILBUR ROSS, et al., Federal Defendants, and MAINE LOBSTERMEN'S ASSOCIATION, INC., and MASSACHUSETTS LOBSTERMEN'S ASSOCIATION, Defendant-Intervenors.	Civil Action Nos. 18-112 (JEB)

Declaration of Glenn Salvador
In Support of Intervenor-Defendants' Remedy Brief

I, Glenn Salvador, state and declare as follows:

1. I have significant first-hand knowledge of New England, mid-Atlantic and Southeast Atlantic commercial fisheries, including knowledge of target species and bycatch interactions, the type of gear and rigging strategies deployed for various fisheries, and operation of vessels and equipment.

2. I have 22 years of professional experience as the Gear Specialist and Fisheries Liaison for NOAA Fisheries (NMFS) serving in this role from 1996 to 2018. I worked for the Northeast Regional office based in Gloucester, MA. In addition to working as NMFS Gear Specialist, I also served as the Fisheries Liaison for the Northeast Fisheries from 1996 to 2002 and Mid-Atlantic Fisheries from 2003 to 2018. My duties included working with fishermen to develop and test gear innovations to reduce the likelihood of entanglement, answering fishermen's questions about how to comply with whale protection requirements, and investigating the source of gear removed from entangled large whales. This work was achieved by attending industry meetings, trade shows and workshops, meeting fishermen on the dock, publishing columns in trade

magazines, and going on commercial fishing trips with regulated fishermen. During all of these years, I worked closely with my counterparts throughout the Northeast, Mid-Atlantic and Southeast regions.

3. I worked as a commercial fisherman for 15 years in the Gulf of Maine, from 1970 to 1985, in the inshore and offshore lobster and gillnet fisheries. I also owned and operated a commercial fishing vessel working in trap and mobile gear commercial fisheries in the West Indies from 1982-1985. I worked briefly as a boat building apprentice in Beals, Maine for two years in the late 1980's, as a field agent and research vessel Captain for the state of Maine Department of Marine Resources from 1987 to 1990, and as a senior at-sea fisheries observer for Manomet from 1990 to 1996 collecting commercial fishing data on east coast fisheries operating from Maine to Florida, including inshore and offshore lobster and gillnet fisheries.

4. I am a certified U.S. merchant marine officer with a 100-ton Master License, a certified Master Fisherman by the World Food and Agriculture Association, and a certified Marine Surveyor by the U.S. Surveyors Association. I have received several awards from the U.S. Department of Commerce including the 2004 Bronze Medal for forging cooperative relationships with fishermen and developing gear modifications; the 2007 Bronze Medal for excellence in managing a fishing gear buy-back program; the 2007 Silver Medal for reducing the bycatch of marine mammals and turtles in commercial fisheries; and the 2016 Bronze Medal for exceptional leadership, innovation and collaborative approach in working with commercial fishermen and stakeholders.

5. As NMFS's Fisheries Liaison, I led the region's collaborative research efforts with fishermen to develop entanglement mitigation strategies that are safe and operationally practical for the fleet. There was strong interest from the fishing community to participate in research to

develop whale-friendly fishing gear and deployment strategies. These projects included documenting operational needs of the lobster and gillnet fisheries, including the loads encountered on lines during hauling and setting of gear and observing vertical and bottom profiles of gear when they are fished. I coordinated many collaborative research projects with fishermen. Gillnet research included modified float lines and lead lines to weaken the net through the use of knots, lighter ropes, weak links and "Chinese fingers." Lobster gear research included testing of low profile ropes, acoustic releases, mechanical weak links, bottom weak links and buoy line messenger systems, gear marking techniques, weak link testing, gear retrieval with lighter buoy lines, low profile groundlines and time tension line cutters. I also conducted a variety of workshops with fishermen including whale disentanglement workshops for fishermen focused on proper identification of whale species and safely executing successful disentanglement strategies for fishermen, and several gear development workshops. I learned early in the process that fisheries are extremely diverse and because of that, there are no simple solutions.

6. I was personally involved in analyzing much of the gear removed from entangled large whales, including North Atlantic right whales. In investigating these cases, I interviewed those who observed the whale entangled at sea, were involved in efforts to disentangle the whale, the necropsy team and the fishermen who set the gear when this information was available. The results of these investigations were included in National Marine Fisheries Service annual *Atlantic Large Whale Entanglement Reports* from 1999 to 2018. [i]

7. There are only a few instances where a right whale has been observed encountering and becoming entangled in commercial fishing gear. This makes analyzing gear removed from entangled whales extremely complicated because we are trying to reverse engineer an

unobserved event. This requires a complex investigation to determine the origin of the fishery (such as country or state/province), the category of fixed gear (such as netting, trap/pot, long line), and the target fishery. The gear team also makes determinations on whether or not the entangling gear was compliant with regulatory requirements. This requires intimate knowledge of the range of surface systems, types of rope used to deploy the gear and the size and scale of the fishing gear, such as traps or nets commonly used in a range of fisheries. Once NMFS received the entangling gear from the disentanglement team, all gear was inventoried, measured and logged. Gear was categorized as part of the surface system (buoys, buoy sticks, highflyers, weak links, etc.) or bottom system (traps, nets, hooks, etc.), ropes were measured by lengths recovered, diameter and unique features (float, sink, lead-lined, etc.), and unique identifying features were noted, such as various flotation devices, knots and splices, gear marking or other elements. Conclusive determinations were challenging because often only a portion of the gear system was retrieved, and many fisheries deploy similar pieces of gear. Identifying the responsible fishery can be determined if identifying marks were retrieved, such as a license number on a buoy, mandatory gear marks, or other distinguishing features.

8. For this declaration I have reviewed the data on gear fishing gear removed from right whales since records were officially maintained by NMFS beginning in 1997. Specifically, I referenced the database prepared by NMFS for the Atlantic Large Whale Take Reduction Team (ALWTRT) as background information for its April 2019 meeting. These data clearly show that since 2010 lobster fishing gear and ropes have been rarely removed from North Atlantic right whales, something that was common prior to 2010. Based on this review and my cumulative professional experience as a gear specialist and commercial fisherman, it is my opinion that the changes in gear and fishing practices in the American lobster fishery implemented in 2009 and

2014 have significantly reduced the risk of the New England lobster fishery to right whales. The largest entanglement threat is now posed by Canadian snow crab gear trap/pot gear.

9. The analysis of fishing gear removed from right whales, for which I was a key member of the investigative team until 2018, indicates that entanglement in New England lobster gear has declined by 90% since 2010. From 1997 through 2010, lobster gear was removed from 10 North Atlantic right whales. In the last decade, lobster gear has been removed from only one right whale, which did not result in a serious injury. The majority of rope removed from right whales since 2010 is large diameter rope that is rarely deployed in the New England lobster fishery. The decline in lobster gear removed from entangled right whales reflects the success of key conservation measures implemented by fishermen, such as sinking groundlines. The 2009 requirement to replace the floating rope deployed between traps with rope that sinks resulted in the removal of 27,000 miles of floating groundlines from New England's waters. Since then, there have been no instances of groundlines removed from entangled right whales.[ii] The 2014 requirement to reduce vertical lines removed an additional 2,740 miles of rope from the water.[iii]

Right Whale Entanglement

10. When a live whale is reported entangled at sea, a response team is deployed to assess the whale and its condition and efforts are made to disentangle the whale. The success of this effort is highly dependent upon weather, location of the whale and complexity of entanglement. Disentanglers attempt to retrieve any gear removed from whales, but this is not always possible. Often gear that is cut in an effort to free the whale will sink to the bottom, or cuts to the gear that are made to simplify the entanglement configuration allow the whale to shed the gear at sea on its own so the gear is not recovered. Any gear retrieved from an entangled whale is turned over to the NMFS gear team which conducts a thorough investigation of the case. A report is prepared

for each case which includes a summary of the case, a description of the gear removed from a whale and conclusions regarding gear type and target fishery when determined.

11. As an example, NMFS entanglement case E02-17 involved an entangled right whale #3530, known as Ruffian, first observed off the Georgia coast during an aerial survey in January 2017 by Florida Fish and Wildlife Conservation Commission (FWC). The case was reported to the Georgia Department of Natural Resources (GA DNR) which responded on scene. GA DNR attached a telemetry buoy to the whale so that it could be relocated for disentanglement the next day. The response team made a strategic cut near the head, and the whale shed the remaining gear the next day. Upon analysis by the NMFS gear team, the gear description noted "451 feet of 5/8" line was recovered with a large conical steel trap (134 lbs) that had empty bait bags, and a partially destroyed plastic funnel. Cut-out areas in the mesh of the trap were consistent with those required in the snow crab fishery per DFO [Canada's Department of Fisheries and Oceans]. Some of the line recovered also has a unique core build that is not used in any known U.S. Atlantic fishery but has been identified in other confirmed Canadian snow crab cases." The gear team commented, "No twine remained in the mesh cut-outs suggesting that the trap was in the water for at least a period of four months per DFO. No trap tag or surface buoy was present to help identify the exact location of the fishery or fishery." The gear team concluded, "Recovered gear is consistent with the Canadian snow crab fishery. Growth on the trap, line and the missing escape vents suggest that the gear was in the water for at least a period of 4 months." This gear is now located at NMFS gear facility in Narrangansett, RI.

12. In my experience, there are many cases in which right whales are reported entangled but are observed gear-free in future sightings. The majority of entanglements do not result in serious injury or death. The 2019 draft Right Whale Stock Assessment (page 142) notes,

"Whales often free themselves of gear following an entanglement event."[iv] Knowlton, et al, 2012, published the first significant research on right whale encounter rates with fishing gear from 1980 to 2009, finding that "Most right whales that become entangled apparently clear themselves of the gear and are left with only scars." This research documented that an average of 98.8% of these right whale encounters with fishing gear do not result in serious injury over the 30 year time series.[v]

Decreasing Trend in American Lobster Gear associate with Right Whale Entanglement

13. My former colleague, David Morin, NOAA Fisheries Large Whale Disentanglement Coordinator, provided a database to the Atlantic Large Whale Take Reduction Team at its April 2019 meeting containing records of right whale vessel strikes and entanglements documented between 2000 and 2018.[vi] This database includes all of the known information on fisheries and gear associated with right whale entanglements during this time period. Earlier versions of these data formed the basis to classify the American lobster fishery as a Category I fishery under the Marine Mammal Protection Act's annual List of Fisheries determination. These data and corresponding categorization established the basis for the formation of the ALWTRT and development of the Atlantic Large Whale Take Reduction Plan (ALWTRP).

14. This database also contains data on vessel strikes which remain a source of right whale serious injury and mortality. From 2000 to 2018, there were 70 documented vessel strikes with right whales. Of these, 33 were attributed to U.S. vessels, 7 to Canadian vessels and 30 were undetermined. Of the U.S. vessel strikes, 16 occurred prior to 2009 when the US ship strike plan was implemented and 17 have occurred since; seven of the latter resulted in serious injury or mortality. Additionally, a right whale calf born in 2020 was struck by a vessel and was last

observed in poor condition. Of the Canadian vessel strikes, 3 occurred prior to 2009; 4 have occurred since. All resulted in serious injury or mortality.

15. Based on my years of experience working as a commercial fisherman and analyzing gear removed from whales for NMFS, it is often difficult to determine the fishery from which the entangling gear originated. While there may be a case to rule out a certain fishery, NMFS does not track that data. For example, a whale sighted with a small piece of netting and section of rope would be reviewed by the NMFS gear team. Without specific identifying marks, the rope could be from any number of fisheries, such as whelk, black sea bass or other fishery. The netting could be from fixed gear or pelagic net fishery. It also is impossible to determine conclusively that the two pieces of gear recovered originated from the same commercial gear deployment. This hypothetical example would likely be determined as "unknown," although there are many fisheries that one could likely rule out.

16. It is important to understand that discussion of "commercial fishery entanglement rates" encompasses a wide diversity of commercial fisheries located in two countries. Of extreme relevance to this court proceeding, it is not synonymous with entanglement rates from the American lobster fishery.

17. From 2000 to 2018, there were 164 documented entanglements representing a range of commercial fisheries in the U.S. and Canada. There were 38 cases for which the entangling gear could be traced to a fishery; 13 of those cases occurred before 2010 and 25 cases occurred over the last decade. These data show two significant trends.

18. The first important trend is the significant decline in right whale entanglements in U.S. lobster gear since 2010. From 2000 to 2010, U.S. lobster gear comprised 45% of known cases (6 cases out of 13). However, since 2010 U.S. lobster gear comprises only 0.04% of known

cases (1 case out of 25). Since 2014, there has been only one entanglement, a non-serious injury, in New England lobster gear. As detailed below, ropes removed during this time period are not characteristic of ropes used in the New England lobster fishery. In my expert opinion, the decline in lobster gear entanglement is due to the success of whale protection measures implemented by lobstermen and a significant distributional shift of right whales into Canadian waters where they encounter Canadian fishing gear.

19. The second important trend is the dramatic increase in right whale entanglements in Canadian trap/pot gear since 2010. From 2000 to 2010, 23% of known entanglements were in Canadian trap gear (3 out of 13). This has increased to 52% since 2010 (13 out of 25). Seven of these recent cases resulted in serious injuries or mortalities to right whales.

20. Gillnet gear also emerged as a known threat to right whales. There has been a slight increase in trend in gillnet gear or netting removed from right whales, with one case documented prior to 2010 and seven cases over the last decade; three of these recent cases resulted in serious injuries. There was also a significant increase in entanglements that could not be attributed to a fishery since 2010. In recent years, the proportion of these cases with no gear present has increased.

21. There has been a significant change in the size of ropes removed from right whales in recent years. Prior to 2010, 84% of rope removed from right whales was smaller than ½" diameter (26 of 31 samples) and representative of ropes that may be deployed in New England's lobster fisheries. Since 2010, the diameter or ropes removed from entangled right whales has increased dramatically. Ropes ½" in diameter or larger now represents 79% of rope removed from entangled right whales (19 of 24 cases), up from 16% in the previous decade. This trend is significant because the New England lobster fishery deploys predominantly smaller ropes. The

most commonly fished rope is of 3/8" diameter, although smaller ropes of 5/16" diameter and slightly larger ropes of 7/16" diameter are also deployed frequently. Maine Department of a Marine Resources conducted a study of New England lobstermen in 2019 which documented that 94% of lobstermen from Maine, New Hampshire, Massachusetts and Rhode Island fish with ropes smaller than ½" diameter.[1]

22. Overall, from 2000 to 2018, there were 164 documented entanglements representing a range of commercial fisheries. Of these 17 were attributed to U.S. fisheries, 21 to Canadian fisheries and 126 were not traced to either country. Of the U.S. entanglements in commercial fishing gear, nine occurred prior to 2010 when major modifications to the Atlantic Large Whale Take Reduction Plan were implemented banning the use of floating groundlines in fixed gear fisheries managed under the plan; eight have occurred since, two of which resulted in serious injury or mortality. Of the Canadian entanglements in commercial fishing gear, 5 occurred prior to 2010 and 16 have occurred since, six of which resulted in serious injury or mortality.

23. I worked on the analysis of entangled right whale 3911, now known as Bayla, that died in 2010. The acute cause of death of this whale was shark predation, although the necropsy team noted significant entanglement trauma on the head, mouth and flippers. The gear team examined approximately 435 feet of 7/16" diameter polypropylene (floating) rope, which had six to seven gangions along this rope with portions of bridles attached. Some of the bridle ends are attached to plastic coated wire mesh, measuring 2" by 2" center to center. This gear is consistent with floating groundline used in the trap/pot fishery prior to April 2009 in U.S. trap/pot fisheries regulated under the ALWTRP. Floating groundline was banned from use in most U.S. trap/pot

[1] This does not include data from the Area 3 lobster fishery. See https://archive.fisheries.noaa.gov/garfo/protected/whaletrp/trt/meetings/April%202019/Meeting%20Materials/Interssional/assessment_of_vertical_line_use__in_ne_trap_pot_fisheries___summer_et_al.pdf

fisheries in April 2019. The gear team did not determine that this entanglement was caused by lobster gear for several reasons because there were several trap/pot fisheries that could not be ruled out. Importantly, there was no surface system or trap tags found to identify the target fishery. This gear had characteristics consistent with several trap/pot fisheries including Canadian lobster, jonah crab or conch.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed on June 18, 2020 at Belle Haven Virginia

/s/
Glenn Salvador

[i] NMFS Gear Entanglement reports are located at https://archive.fisheries.noaa.gov/garfo/protected/whaletrp/reports/index.html

[ii] The two most recent right whale trap/pot fishery groundline entanglement involved floating and not sinking line. These were right whale 3911 (2010) and right whale 3311 (2011).

[iii] https://s3.amazonaws.com/nefmc.org/NEFMC-PRD-RW-Presentation_Final_rvsd.pdf

[iv] U.S. Atlantic and Gulf of Mexico Draft Marine Mammal Stock Assessment, North Atlantic right whale (*Eubalaena glacialis*): Western Atlantic Stock, 2019 draft report

[v] Knowlton, A.R., P.K. Hamilton, M.K. Marx, H.M. Pettis and S.D. Kraus. 2012. Monitoring North Atlantic right whale *Eubalaena glacialis* entanglement rates: a 30 year retrospective. Mar. Ecol. Prog. Ser. 466:293–302.

[vi] NOAA Fisheries' 2000-2018 Right Whale Incident Data Spreadsheet, located at https://archive.fisheries.noaa.gov/garfo/protected/whaletrp/trt/meetings/April%202019/2000-2018_right_whale_incident_data_3_19_19v.xlsx.